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IN THE APPLICATION

OF

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FOR A

PADDED LICENSE PLATE SCREW

PADDED LICENSE PLATE SCREW

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

5 The present invention relates to bumper protection devices, particularly to a padded license plate screw designed to prevent small nicks in plastic bumpers from license plate bolts in low-speed collisions.

2. DESCRIPTION OF THE RELATED ART

10 Many automobile manufacturers today value aesthetics above collision protection when deciding automobile bumper design and construction. An increase in demand for contemporary, trendy bumpers combined with a gradual relaxing of federal standards regarding bumper collision requirements have led to the use of plastic bumper covers replacing chrome bumpers. Stylish plastic
15 bumper covers have a greater appeal to customers. Plastic can be painted to match the body color and has a more modern look than chrome. It also weighs less than chrome or metal, thereby decreasing the weight of the vehicle and increasing the vehicle's fuel efficiency level. However, when it comes to damage control plastic has a costly disadvantage. To repair a

small ding or nick in a textured plastic bumper cover will require total replacement of the bumper. Similar damage to a flat plastic bumper can be repaired and repainted.

In many states vehicle owners are required to attach
5 license plates to both the front and rear end of the vehicle. The metal bolts used to fasten license plates to the vehicle are notorious for making costly puncture dings in plastic bumper covers, especially in high traffic areas and particularly during rush hour. When stop and go traffic is prevalent, there are a
10 high number of low-impact bumper-to-bumper taps. Such damaging taps may also occur when the driver makes a miscalculation while parking. These taps cost owners an estimated average of Three Hundred to Five Hundred Dollars in total repair costs, not including lost work time and rental car expenses. High end
15 vehicle repairs, such as for a Jaguar or Mercedes Benz, can average from Five Hundred to Twelve Hundred Dollars.

What is needed is a device that will minimize or eliminate the damage done from nicks from license plates screws in low speed collisions. Many of the small puncture marks and nicks
20 caused by license plate screws in such collisions could be avoided if there were some type of cushion between the screws on the moving vehicle and the plastic bumper of the stationary

vehicle to absorb and disperse the force of the impact. The padded license plate screw provides such a cushion. The invention is designed to be small and unobtrusive, yet efficient in shielding the opposing bumper from the potential costly damage of a license plate bolt puncture.

There are several different types of license plate covers and screw caps conventionally available. Most, for example, screw caps designed with plastic or metallic emblems or icons, are designed for stylish purposes instead of damage reduction purposes. There are also various covered screws in other arts, such as rubber support screws for furniture. However, such devices are not designed to address the specific problem solved by this invention.

U.S. Patent No. 2,944,367 issued July 12, 1960 to F.C. Bontecue describes a specially constructed support structure to stabilize a table, cabinet, or similar appliance. The invention includes a cylindrical, hollow, flexible cap attached to the top of a rivet. The cap contains a boss that separates the appliance from the top portion of the cap. The boss is attached to a web that bends when there is a disproportionate amount of weight above that particular corner of the appliance, thereby leveling the appliance.

U.S. Patent No. 3,693,495, issued September 26, 1972 to D.P. Wagner describes a screw and washer encapsulated by a molded plastic fastener. The plastic fastener is designed to withstand high torque levels without stripping from the metal.

5 The fastener's purpose is to provide an efficient way to coordinate colors of fasteners with other components of the particular construction.

U.S. Patent No. 4,041,834, issued August 16, 1977 to D.J. Herkes discloses another plastic headed fastener. The invention

10 features a quad-post design aiming to be capable of accepting high torque or high impact driving such that it may be drilled or tapped without damaging or stripping the plastic cap.

U.S. Patent No. 4,813,833, issued March 21, 1989 to A.D. Haab describes a metal threaded fastener with a polypropylene

15 jacket covering the head and metal protuberances extending partially through the jacket. The fastener is designed for outdoor use, primarily in the construction of storage bins. The metal protuberances allow the bin assembler to hear a metal-to-metal sound when the fastener has been completely tightened in

20 to prevent over-tightening and subsequent damage to the polypropylene jacket.

Other patents showing license plate screws or covered screws include U.S. Patent No. 6,519,882 issued February 18, 2003 to S.T. Shuen (decorative license plate frame structure); U.S. Patent No. 4,482,278 issued November 13, 1984 to J.D. Dorn (bolt with a plastic covering over the head with openings in the covering for sharp projections from the head to pass through); and U.S. Patent No. 5,381,618 issued January 17, 1995 to R.L. Singleton (security frame for vehicle license plates for preventing or increasing the difficulty of theft of license plates).

None of the above inventions and patents, taken either singly or in combination, is seen to describe the instant invention as claimed. Thus a padded license plate screw solving the aforementioned problems is desired.

SUMMARY OF THE INVENTION

The padded license plate screw is a single piece screw with a force-dispersing pad permanently attached to the head. The padded license plate screw is designed specifically to replace license plate bolts and used to prevent or minimize bumper damage that would otherwise be caused by license plate bolts in low-impact collisions.

Details of the present invention will become readily apparent upon further review of the following specification and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

5 Fig. 1 is an environmental, perspective view of a padded license plate screw according to the present invention.

 Fig. 2 is a perspective view of a padded license plate screw according to the present invention.

 Fig. 3 is a side view in section of a padded license plate
10 screw according to the present invention with a flathead screw.

 Fig. 4 is side view in section of a padded license plate screw according to the present invention with a round head screw.

 Fig. 5 is a perspective view of a padded license plate
15 screw according to the present invention with the cap removed and showing the extended head of the screw.

 Similar reference characters denote corresponding features consistently throughout the attached drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is a padded license plate screw, designated 10 in the drawings. The padded license plate screw 10 is designed to prevent or decrease automobile bumper damage due to license plate bolts in low impact collisions. Referring first to Fig. 2, the padded license plate screw includes a screw 12, a padding or cushion cap 16 with a hollow shaft 20, and a platform 14 for attaching the cap to the screw. The shank of the screw 12 should be the same size as that of a standard license plate bolt. The type of screw 12 is not critical, and may be any of various types, such as but not limited to a flathead screw, as shown in the embodiment in Fig. 3, roundhead screw, as shown in the embodiment in Fig. 4, or a Phillips head screw. The screw 12 should be preferably constructed of some type of corrosive resistant metal or galvanized metal.

The platform 14 may be constructed in a number of ways. The preferred embodiment, as shown in Fig. 3, uses a perforated washer 14 placed under the head of the screw 12. An alternative embodiment, shown in Fig. 5, uses a flathead screw with a head having an extended radius. In either or any case, the platform 14 must be of sufficient size to secure the rubber pad and

should be either firmly attached to the screw or a part of the screw itself.

In the embodiments shown in Figs. 1-5 the shape for the cap 16 is conical, but the shape of the cap 16 is not critical. The scope of the present invention extends to any of various shapes or sizes including but not limited to cylindrical, rectangular, hexagonal, or any custom or hybrid designs.

Any elastic but firm material capable of absorbing the force of a low-impact collision and returning to its original state may be used in construction of the cap 16. The preferred material is neoprene rubber, as it is a strong and resilient material and resists degradation from outdoor elements such as extended exposure to sunlight or rain.

The cap 16 must be firmly attached to the support 14. This may be accomplished in any of several various ways, including, but not limited to, use of an adhesive or the hole-filling method employed in the preferred embodiment as shown in Figs. 3-5. Using the hole-filling method, tapered holes 18 having a frusto-conical shape are drilled into the support 14. The cap 16 material is poured into a mold in liquid form and permitted to harden, forming protrusions securing the cap 16 to the support 14.

The cap 16 has a hollow, shaft 20 centrally aligned above the head of the screw 12, as shown in Figs. 3-4. The shaft 20 allows a screw-driving device to reach the head of the screw 12 so that the padded license plate screw 10 can be screwed in to
5 secure a license plate to a car bumper, as shown in Fig. 1.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.